

Climate Change: the Future of Transport

Alpbach Technology Forum 2008

Dr. Gabriela Moser,

spokeswoman for Traffic of the Greens, MP of the Austrian Parliament

Survey

- **Situation**
- **Climate protection targets**
- **The EU 25 'Vision' Scenario as a whole**
- **The role of the transport sector**
- **Measures in the transport sector and their emission reduction potentials**
- **The real Chance for Climate: Rising Oil-Price**



After IPCC and the STERN Reports

- **Comparatively high acceptance for actions, Action is required as quickly as possible**
- **The volume of road, sea and air traffic is increasing in Europe. The volume of traffic carried by rail, which is greener and more environmentally and climate-friendly, is stagnating or declining.**
- **But there are less political measures**
- **Main problem: investment and social balance
„Who carries the costs of transformation“**

Crucial role of transport sector

- **EU target for 2008-12 compared to 1990: - 8%**
- **1990-2004: - 4.8 (- 2.75%) all sectors**
- **1990-2004: + 26 % (+ 32%) transport sector**
- **Share of transport in total EU25 GHG emissions rose from 17% in 1990 to 24% in 2004**

Necessity for Change:

Disadvantages (Drawback) of Cars

- Road Resistance (tyre in comparison with rail)
- Inefficiency (4/5 persons in one car)
- Much space requirement
- Much noise
- More accidents
- Economic inefficiency (15.000 Euro/car/50 minutes per day)

Austria: Emission and Target

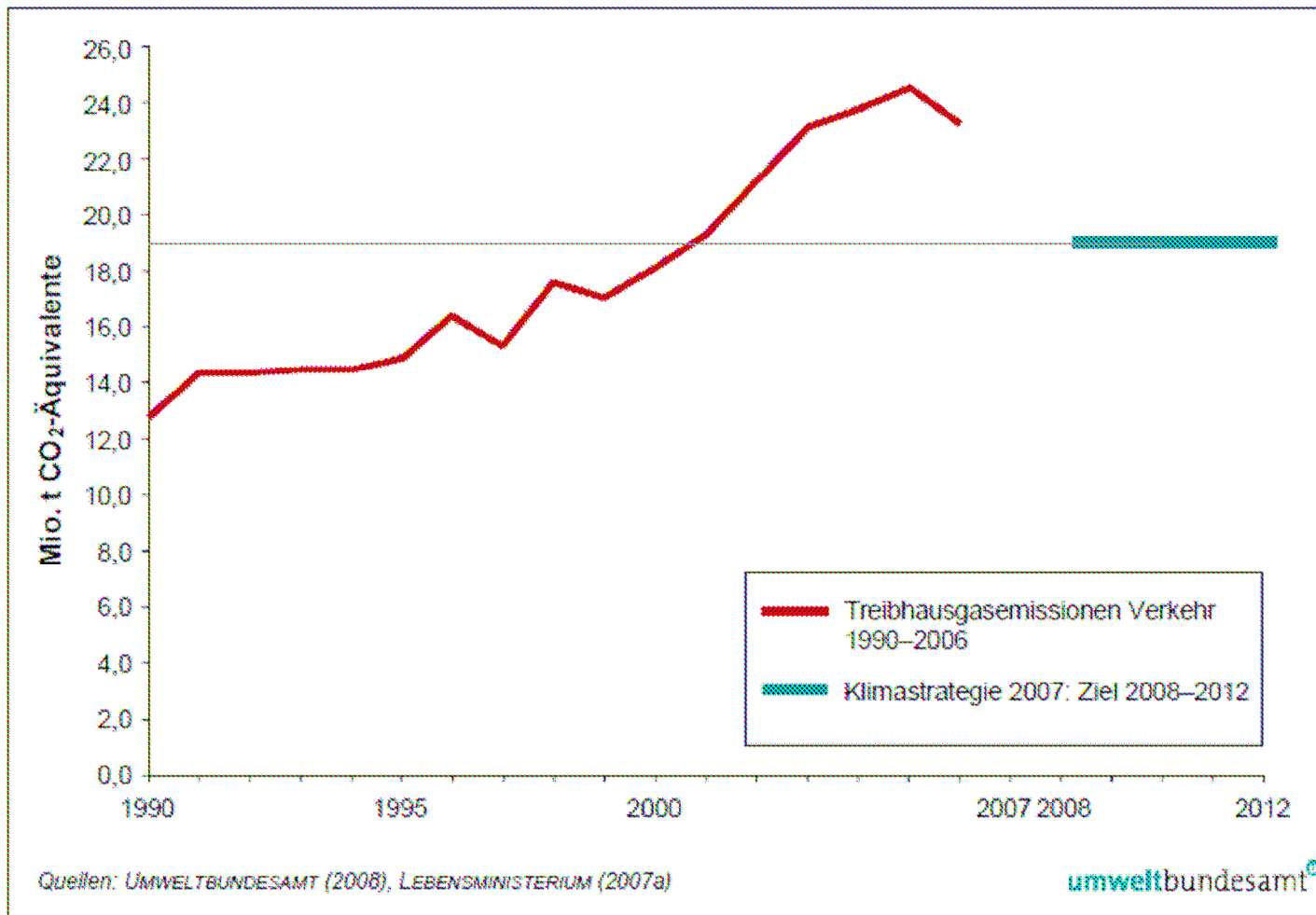


Abbildung 27: THG-Emissionen aus dem Sektor Verkehr, 1990–2006 und Ziel der Klimastrategie.

Modal split for passenger transport (EU 25) in %

1995 1996 1997 1998 1999 2000 2001 2002

Private cars

81.7 81.7 81.9 82.1 82.2 82.2 82.3 82.5

Buses and coaches

10.2 10.1 10 9.9 9.8 9.7 9.6 9.5

Rail

7.0 7.0 7.0 6.9 6.9 7.0 7.0 6.8

Trams and underground railways

1.1 1.1 1.1 1.1 1.1 1.1 1.1 1.1

Modal split for freight transport (EU25) in percentages

| | 1995 | 2002 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 |
|-----------|------|------|------|------|------|------|------|------|
| Road: | 67.8 | 68.3 | 68.2 | 69.3 | 70.5 | 70.4 | 71.3 | 72.0 |
| Rail | 19.8 | 19.4 | 19.6 | 18.5 | 17.5 | 17.7 | 16.8 | 16.4 |
| Waterways | 6.6 | 6.3 | 6.4 | 6.4 | 6.2 | 6.2 | 6.1 | 6.0 |
| Pipelines | 5.8 | 6.0 | 5.7 | 5.9 | 5.7 | 5.6 | 5.8 | 5.6 |

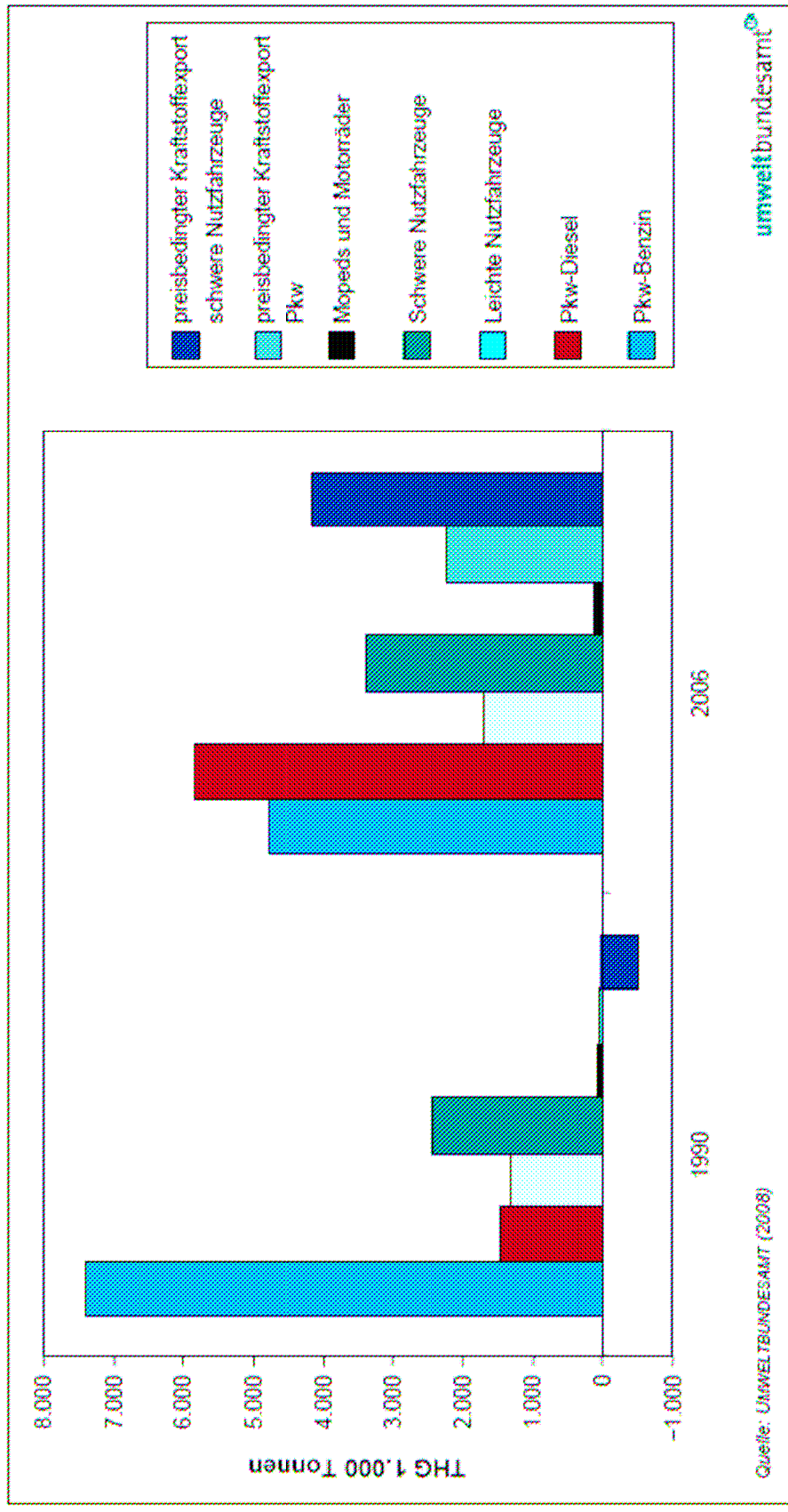


Abbildung 30: THG-Emissionen aus dem Straßenverkehr auf Basis des in Österreich verkauften Kraftstoffes.

Austria: Modal Split

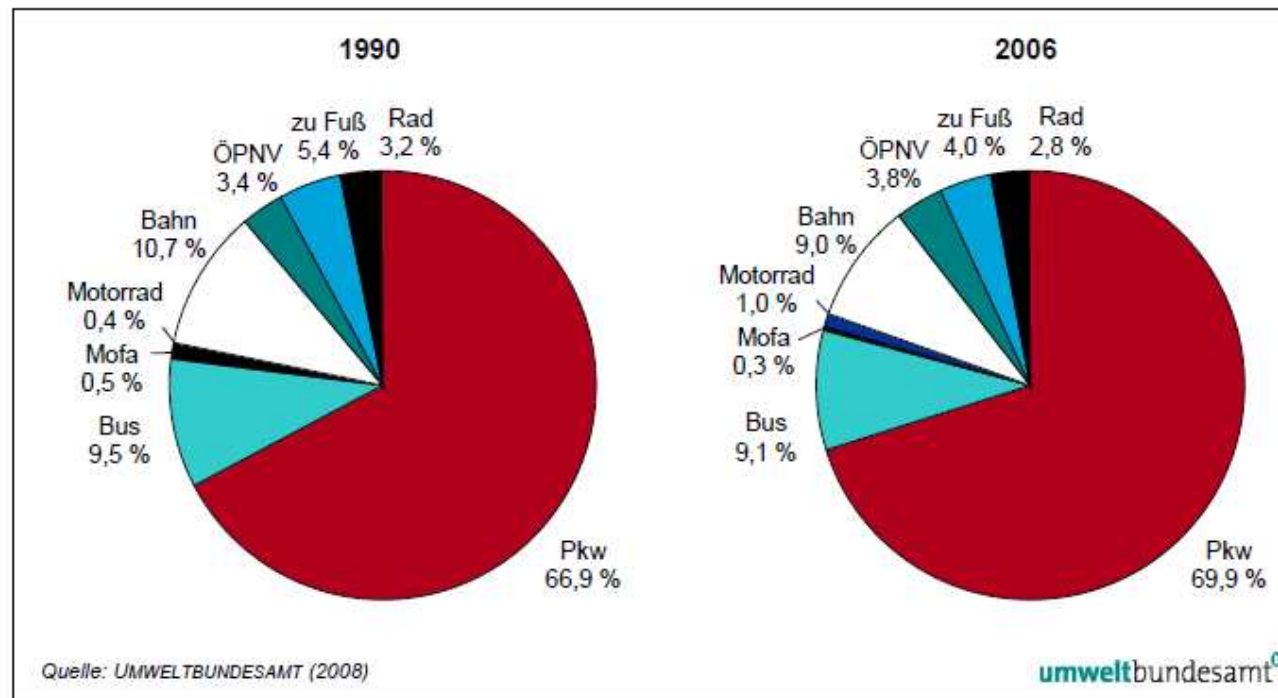


Abbildung 33: Aufteilung der Verkehrsmittelwahl (Modal Split) im Personenverkehr 2006.

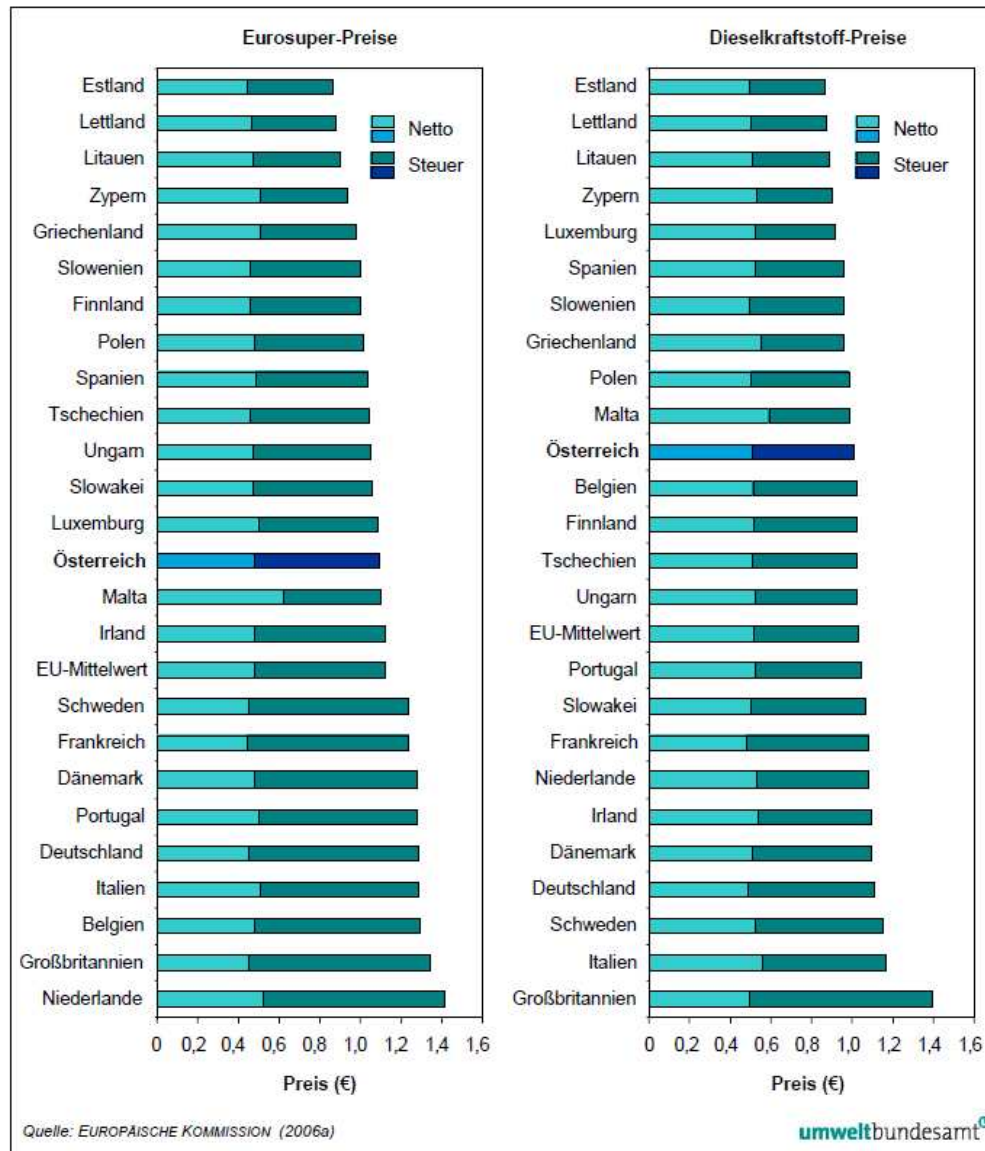


Abbildung 29: Vergleich der Brutto- und Nettotreibstoffpreise in den EU-Ländern (Mittelwert 2005).

Fuel- Costs

Fuel-Price and Income

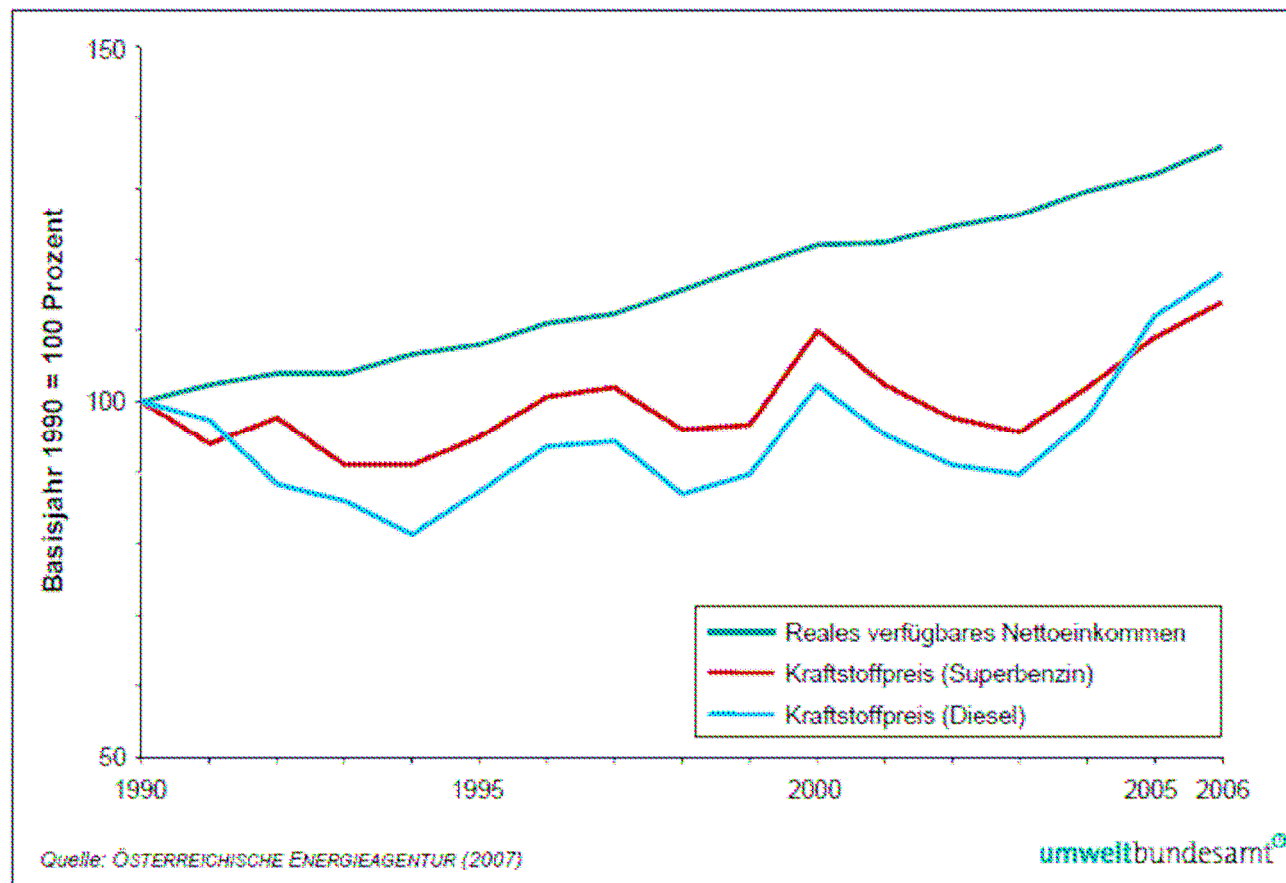
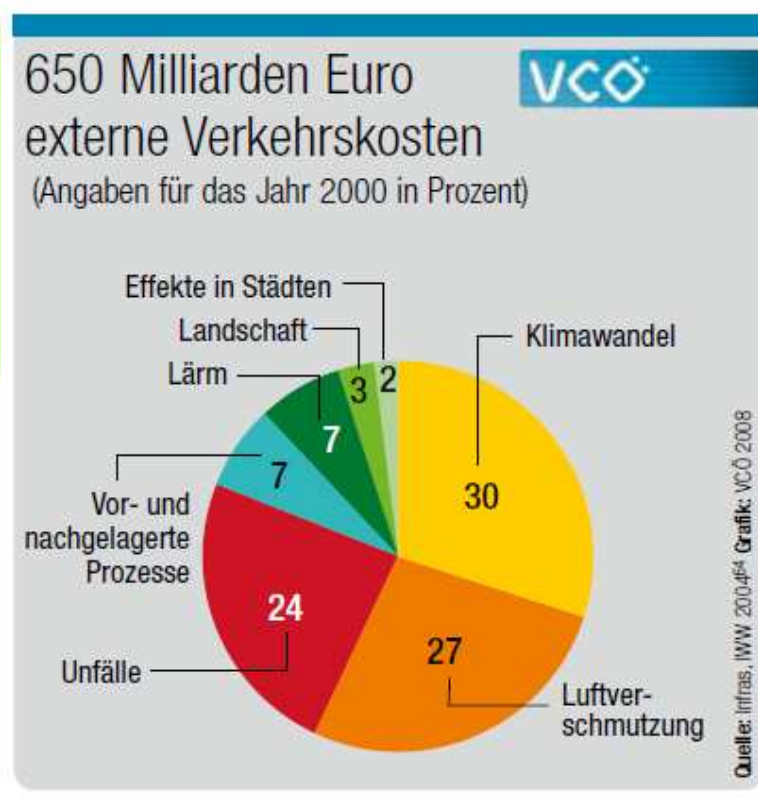


Abbildung 32: Entwicklung der Preise für Superbenzin und Diesel im Vergleich zum Pro-Kopf-Einkommen.

Main -Problem

Transport pricing does not tell the environmental truth, because social costs are not factored in. This, along with selected tax subsidies, especially for air transport, distorts competition between modes of transport to the detriment of the railways.

External Costs



TEN

The planning of **transport infrastructure** by the Member States, and more especially by the EU itself in the form of trans-European net-work (**TEN**) projects, is hopelessly **underfunded** and is still based in some cases on the pursuit of the **wrong priorities**, with expensive show-case projects being put before efficient transport systems, hardware before software and the construction of new railways before the upgrading of existing lines.

EU consensus: 2°C goal

(above pre-industrial levels)

- **main implication: stabilisation of global GHG emissions at 450 ppm CO₂e**
- **significant emission cuts: 50-60% by 2050)**
- **industrialized countries (~70...90%)**

Transport accounts for about 70% of annual oil consumption (EU). 96% of the fuel burned in internal-combustion engines comes from mineral oil. No other area of economic activity is so dependent on oil

The 'Vision' Scenario for the EU 25:

- **30% GHG reduction by 2020**
 - **Avoidance of risk substitution (no nuclear renaissance)**
 - **Security of supply implications** risk of supply disruptions (physical availability) risk of economic weakness (price impacts)
 - **Analysis of options for energy efficiency and renewable energies as well as the shift to low carbon fossil fuels and the medium-term option of CCS over time**
 - **Target: identification of key challenges and areas of action and derivation of some technical and political conclusions**

Aims and Start

1. Breaking the **link between economic and transport growth**, defining the target for the switch to rail and reducing the volume of CO2 emissions generated by transport operations
2. Development and reorganisation of our present transport set-up into a modern, energy-efficient and customer-friendly transport system is not only an **environmental necessity but also an economic opportunity for Europe**
3. **Starting point:** the high efficiency and high renewables scenarios presented by DG TREN (2006) in combination with some other studies on EU projections aggregated for the 25 MS

Additional measures

Additional measures are required for the transport sector to achieve greater reductions in CO₂-emissions!

In the 'Vision' Scenario, 3 different packages of measures were considered:

- 1. Changes in modal shift & transport avoidance**
- 2. Fuel efficiency of passenger cars**
- 3. Share of biofuels, but only of the 2nd Generation**

1a. Modal shift & enhanced load factors

A strong focus on measures in changing the modal split by targeting public and rail freight transport with comprehensive efforts to avoid transport with a

- consistent liberalisation approach of the railway system and
- major system investments to strengthen the competitiveness and the infrastructure of rail transport

Change in energy consumption in 2030 as a result of the modal shift (DG TREN 2004) :

- passenger cars and motorcycles - 12%
- trucks - 12.7%.
- public road transport + 11.5%
- rail transport + 20%
- inland navigation + 5.4%

1b. Aviation

- **Introduction of an emissions trading scheme for aviation**
- **Together with:**
 - Kerosene tax
 - Value added tax on international tickets
 - Air tickets taxes

The fuel consumption of national and international aviation would be 23% less in 2030 compared to the baseline scenario (according to PRIMES 2006)

2 a. Specific fuel consumption of passenger cars

- **Enhancing the fuel efficiency of PCs**
two key elements are required:
 - **On the supply side: Legislation for a CO₂ emission target of new cars sold within the EU (80 g/km in 2020)**
 - **On the demand side: Change in consumer behaviour...**

2b . Specific fuel consumption of passenger cars

- **New communication strategies to make smaller and lower powered cars more attractive**
 - Tax base of registration and vehicle taxes directly related to the CO₂ emissions
 - Amendment of the Car Fuel Efficiency Labelling Directive including a comparing Labelling
- **Incentives to support a faster fleet renewal**
- **Promotion and standardised labelling for low friction oils and low resistant tyres and tyre pressure monitoring systems**
- **Broad promotion of a fuel-efficient driving style**
 - Combined with in-car devices which indicate the actual fuel consumption of the car to the driver

Conclusion for a more sustainable mobility

The key elements are:

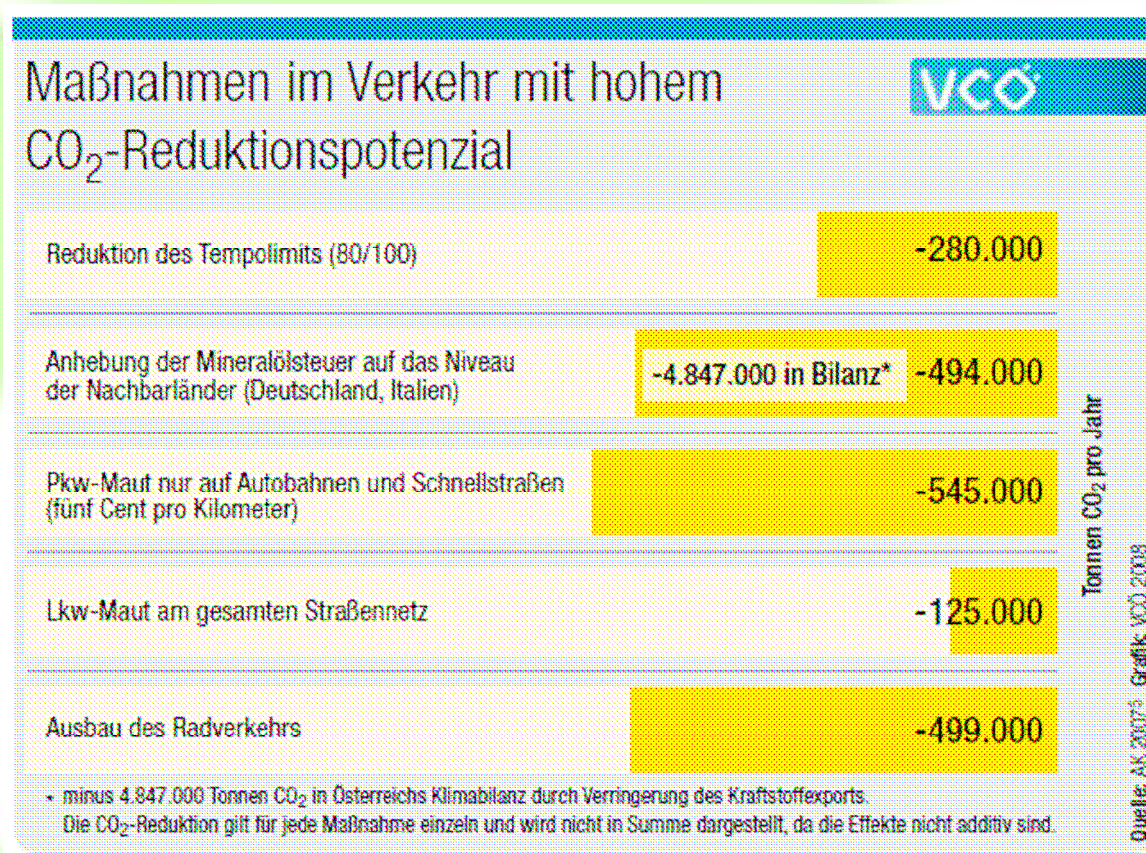
- Extensive tapping of vehicle-related **efficiency potentials**
- Development of strategies for **transport avoidance and modal shift** and their straight-forward implementation in both passenger and freight transport
- Transformation of fuel requirement to an **energy basis** that is as renewable as possible, taking into account climate efficiency as well as cost efficiency
- **Sustainability certification** for biomass and an **optimal allocation** of the limited renewables

In order that the transport sector can contribute to climate protection all options have to be implemented together!

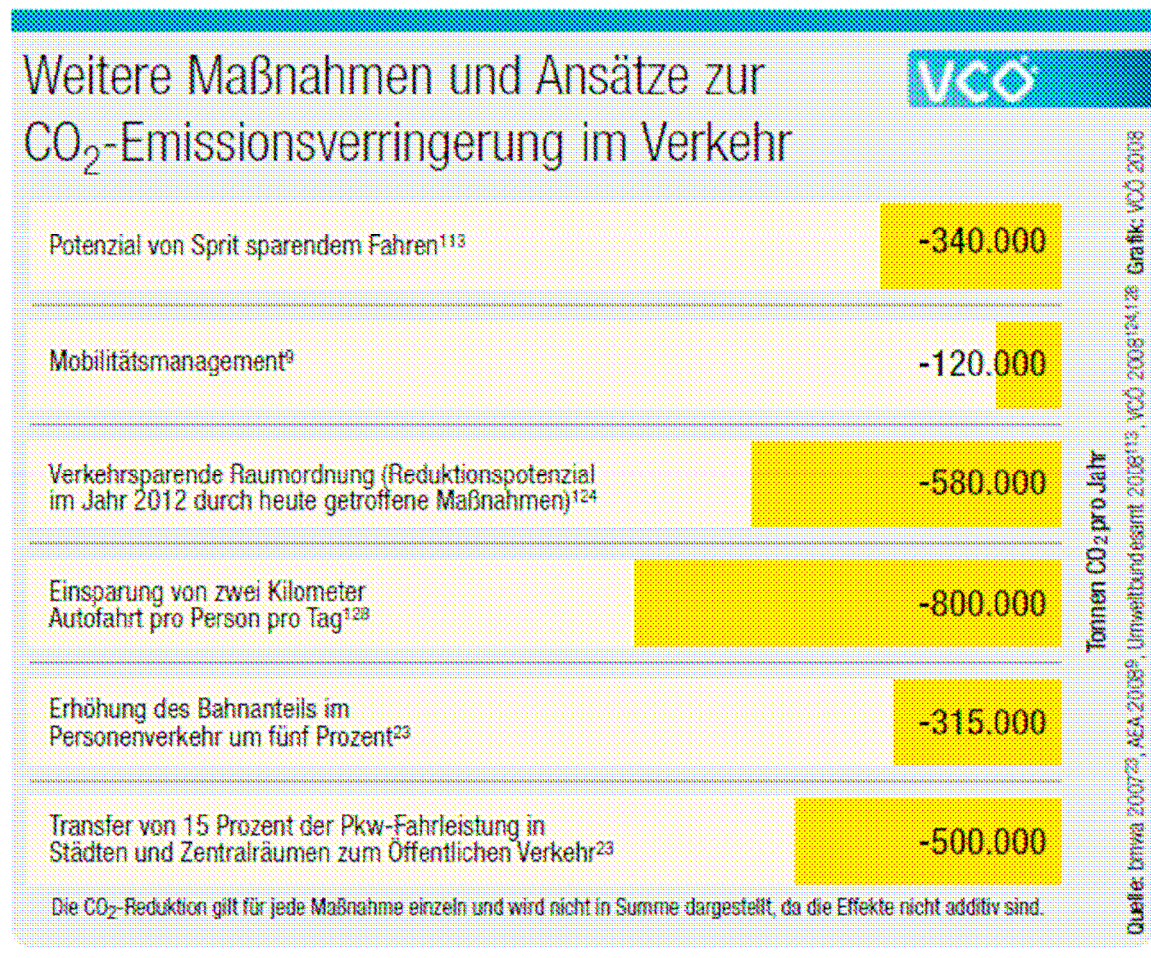
What action can be taken to achieve these aims?

- *traffic reduction* is the foremost priority by improving haulage logistics to avoiding unladen journeys (introduction of the mileage-based heavy-vehicle levy)
- *planning* based on the aim of minimising the distances people have to travel, combined with clear priority for public transport
- *Increasing the energy-efficiency of vehicles and the vehicle utilisation rate* per vehicle/kilometre
- *choice of mode* with the highest level of energy-efficiency
- *Mobility card* for transport (pub. t. and rental car)

Measures to reduce I



Measures to reduce II



The real Chance for our Climate:

Rising Oil-costs of Transport

- The cost of shipping a 12-meter container from Shanghai to the USA has risen to \$ 8,000, compared with \$ 3,000 early in the decade.
- Big Container ships have cut their top speed by nearly 20 %.
- Tesla stopped to produce 450 kg battery packs in Thailand and Britain, so cutting more than 8,000 km from the shipping bill for each vehicle.



Thank you very much for your interest

Dr. Gabriela Moser, www.mosermobil.at

gabriela.moser@gruene.at